What Is Claimed Is:

1.   A method for conducting an inventory of passenger bags, wherein a bag tag is attached to each bag and each bag tag is permanently assigned a tag identification number (Tag ID) and a manufacturer number, the method comprising the steps of:

at a tag reader, transmitting a wake-up signal followed by at least one first clock signal;

at each bag tag,

    incrementing a first tag count in response to said at least one first clock signal, and

    transmitting the Tag ID assigned to said each bag tag when said Tag ID of said each bag tag corresponds to said first tag count;

at said tag reader,

    incrementing a first reader count in response to said at least one first clock signal,

    storing a given first reader count when more than one bag tag responds to one of said at least one clock first signal that corresponds to said given first reader count, and

    transmitting said given first reader count followed by at least one second clock signal; and

at each bag tag that responded to said one of said at least one first clock signal that corresponds to said given first reader count,

    incrementing a second tag count in response to said at least one second clock signal, and

    transmitting the manufacturer number assigned to said each bag tag that responded to said one of said at least one first clock signal that corresponds to said given first reader count when said manufacturer number of said each bag tag corresponds to said second count.

2.   The method of claim 1, wherein a ticket tag is attached to each passenger's ticket and each ticket tag is permanently assigned the Tag ID and the manufacturer number of the bag tag attached to the passenger's bag, further comprising the steps of:

conducting an inventory of the ticket tags according to the method of claim 1; and

comparing said inventory of ticket tags to the inventory of bag tags to ensure that each passenger and said each passenger's bags board the same vehicle.

3.   The method of claim 1, wherein:

each bag tag is permanently assigned a tag ID and a manufacturer number at the time of manufacture.

4.   The method of claim 1, wherein at least one bag tag includes a sensor, further comprising the step of:

at the at least one bag tag, transmitting the contents of said sensor.

5.   A tag for use in conducting an inventory of passenger bags, wherein each bag is attached to a tag and each tag is permanently assigned a tag identification number (Tag ID) and a manufacturer number, the tag comprising:

means for receiving a wake-up signal followed by at least one first clock signal;

means for incrementing a first tag count in response to said at least one first clock signal;

means for transmitting the Tag ID assigned to the tag when said Tag ID corresponds to said first tag count;

means for receiving at least one second clock signal;

means for incrementing a second tag count in response to said at least one second clock signal; and

clock signal; and

12   means for transmitting the manufacturer number assigned to the tag when said

13   manufacturer number of said each tag corresponds to said second count.

1   6.   The tag of claim 5, further comprising:

2   a sensor; and

3   means for transmitting the contents of said sensor.

1   7.   A reader for conducting an inventory of passenger bags, wherein

2   each bag is attached to a tag and each tag is permanently assigned a tag

3   identification number (Tag ID) and a manufacturer number, the reader

4   comprising:

5   means for transmitting a wake-up signal followed by at least one clock signal;

6   means for incrementing a first reader count in response to said at least one first

7   clock signal,

8   means for receiving a Tag ID transmitted by a tag in response to one of said at

9   least one first clock signal;

10   means for storing a given first reader count when more than one tag responds to

11   one of said at least one first clock signal that corresponds to said given

12   first reader count;

13   means for transmitting said given first reader count followed by at least one

14   second clock signal; and

15   means for receiving a manufacturer number transmitted by a tag in response to

16   one of said at least one second clock signal.

1   8.   A system for locating a tag, wherein each tag is assigned a

2   permanent identification number, the system comprising:

3   a tag reader that transmits a wake-up signal followed by a time slot number; and

4   at least one tag that transmits a permanent identification number assigned to said

5   at least one tag when said permanent identification number assigned to

6   said at least one tag corresponds to said time slot number.

9.   A method for locating a tag, wherein each tag is assigned a permanent identification number, the method comprising the steps of:

at a tag reader, transmitting a wake-up signal followed by a time slot number; and

at each tag, transmitting a permanent identification number assigned to said each tag when said permanent identification number assigned to said each tag corresponds to said time slot number.

10.   A system for conducting an inventory of tags, wherein each tag is assigned a permanent identification number, the system comprising:

at a tag reader, means for transmitting a wake-up signal followed by at least one clock signal; and

at each tag,

means for incrementing a tag count in response to said at least one clock signal, and

means for transmitting the permanent identification number assigned to said each tag when said permanent identification number of said each tag corresponds to said tag count.

11.   The system of claim 10, further comprising:

at said tag reader, means for transmitting an instruction to perform a tag read.

12.   The system of claim 10, wherein the duration of tag transmissions is fixed, further comprising:

at said tag reader, means for transmitting a further one of said at least one clock signal after the tag transmission duration has elapsed.

13.   The system of claim 10, further comprising:

at said tag reader, means for transmitting a further one of said at least one clock signal after a tag response time has elapsed, wherein said tag response

4   time is the maximum duration of time between a tag reader transmission

5   and the reception at said tag reader of a corresponding tag transmission.

1   14.   The system of claim 10, further comprising:

2   at each tag,

3   a sensor; and

4   means for transmitting the contents of said sensor.

1   15.   The system of claim 10, wherein:

2   each tag is permanently assigned said permanent identification number at the

3   time of manufacture.

1   16.   The system of claim 10, wherein said permanent identification

2   number is encrypted.

1   17.   The system of claim 10, further comprising:

2   means for transmitting a charging signal, thereby energizing the tags.

1   18.   The system of claim 10, further comprising:

2   at said tag reader, means for incrementing a reader count in response to said at

3   least one clock signal.

1   19.   The system of claim 18, further comprising:

2   at said tag reader, means for indicating an error when said reader count does not

3   correspond to said permanent identification number.

1   20.   The system of claim 18, wherein:

2   corresponding ones of said permanent identification number and said reader

·3   count are identical.

21.   The system of claim 18, further comprising:

at said tag reader, means for storing a given reader count when more than one tag

responds to one of said at least one clock signal that corresponds to said

given reader count.

22.   The system of claim 21, wherein each tag is assigned a second

permanent identification number, further comprising:

at said tag reader, means for transmitting said given reader count followed by at

least one second clock signal; and

at each tag that responded to said one of said at least one clock signal that

corresponds to said given reader count,

means for incrementing a second tag count in response to said at least one

second clock signal, and

means for transmitting the second permanent identification number

assigned to said each tag when said second permanent

identification number of said each tag corresponds to said second

count.

23.   The system of claim 22, further comprising:

at said tag reader, means for transmitting an instruction to perform a second tag

read.

24.   The system of claim 22, further comprising:

at said tag reader, means for incrementing a second reader count in response to

said at least one second clock signal.

25.   The system of claim 24, further comprising:

at said tag reader, means for indicating an error when said second reader count

does not correspond to said second permanent identification number.

26.   The system of claim 24, further comprising:

at said tag reader, means for storing said given reader count and a given second

reader count when more than one tag responds to one of said at least one

second clock signal that corresponds to said given second reader count.

27.   The system of claim 26, wherein each tag is assigned a third

permanent identification number, further comprising:

at said tag reader, means for transmitting said given reader count and said given

second reader count followed by at least one third clock signal;

at each tag that responded to said one of said at least one second clock signal that

corresponds to said given second reader count,

means for incrementing a third tag count in response to said at least one

third clock signal, and

means for transmitting the third permanent identification number

assigned to said each tag when said third permanent identification

number of said each tag corresponds to said third tag count.

28.   The system of claim 27, further comprising:

at said tag reader, means for transmitting an instruction to perform a third tag

read.

29.   The system of claim 27, further comprising:

at said tag reader, means for incrementing a third reader count in response to said

at least one third clock signal.

30.   The system of claim 29, further comprising:

at said tag reader, means for indicating an error when said third reader count does

not correspond to said third permanent identification number.

31.   A method for conducting an inventory of tags, wherein each tag is assigned a permanent identification number, the method comprising the steps of:

at a tag reader, transmitting a wake-up signal followed by at least one clock
        signal; and

at each tag,

        incrementing a tag count in response to said at least one clock signal, and

        transmitting the permanent identification number assigned to said each

                tag when said permanent identification number of said each tag

                corresponds to said tag count.

32.   The method of claim 31, further comprising the step of:

at said tag reader, transmitting an instruction to perform a tag read.

33.   The method of claim 31, wherein the duration of tag transmissions is fixed, further comprising the step of:

at said tag reader, transmitting a further one of said at least one clock signal after

        the tag transmission duration has elapsed.

34.   The method of claim 31, further comprising the step of:

at said tag reader, transmitting a further one of said at least one clock signal after

        a tag response time has elapsed, wherein said tag response time is the

        maximum duration of time between a tag reader transmission and the

        reception at said tag reader of a corresponding tag transmission.

35.   The method of claim 31, wherein:

each bag tag is permanently assigned a tag ID and a manufacturer number at the

        time of manufacture.

1   36.   The method of claim 31, wherein at least one bag tag includes a

2   sensor, further comprising the step of:

3   at the at least one bag tag, transmitting the contents of said sensor.

1   37.   The method of claim 31, wherein said permanent identification

2   number is encrypted.

1   38.   The method of claim 31, further comprising the step of:

2   transmitting a charging signal, thereby energizing the tags.

1   39.   The method of claim 31, further comprising the step of:

2   at said tag reader, incrementing a reader count in response to said at least one

3   clock signal.

1   40.   The method of claim 39, further comprising the step of:

2   at said tag reader, indicating an error when said reader count does not correspond

3   to said permanent identification number.

1   41.   The method of claim 39, wherein:

2   corresponding ones of said permanent identification number and said reader

3   count are identical.

1   42.   The method of claim 39, further comprising the step of:

2   at said tag reader, storing a given reader count when more than one tag responds

3   to one of said at least one clock signal that corresponds to said given

4   reader count.

1   43.   The method of claim 42, wherein each tag is assigned a second

2   permanent identification number, further comprising the steps of:

3 at said tag reader, transmitting said given reader count followed by at least one

4 second clock signal; and

5 at each tag that responded to said one of said at least one clock signals that

6 corresponds to said given reader count,

7 incrementing a second tag count in response to said at least one second

8 clock signal, and

9 transmitting the second permanent identification number assigned to said

10 each tag when said second permanent identification number of

11 said each tag corresponds to said second count.

1 44. The method of claim 43, further comprising the step of:

2 at said tag reader, transmitting an instruction to perform a second tag read.

1 45. The method of claim 43, further comprising the step of:

2 at said tag reader, incrementing a second reader count in response to said at least

3 one second clock signal.

1 46. The method of claim 45, further comprising the step of:

2 at said tag reader, indicating an error when said second reader count does not

3 correspond to said second permanent identification number.

1 47. The method of claim 45, further comprising the step of:

2 at said tag reader, storing said given reader count and a given second reader count

3 when more than one tag responds to one of said at least one second clock

4 signals that corresponds to said given second reader count.

1 48. The method of claim 47, wherein each tag is assigned a third

2 permanent identification number, further comprising the steps of:

3 at said tag reader, transmitting said given reader count and said given second

4 reader count followed by at least one third clock signal;

5   at each tag that responded to said one of said at least one second clock signal that

6   corresponds to said given second reader count,

7   incrementing a third tag count in response to said at least one third clock

8   signal, and

9   transmitting the third permanent identification number assigned to said

10   each tag when said third permanent identification number of said

11   each tag corresponds to said third tag count.

1   49.   The method of claim 48, further comprising the step of:

2 at said tag reader, transmitting an instruction to perform a third tag read.

1   50.   The method of claim 48, further comprising the step of:

2 at said tag reader, incrementing a third reader count in response to said at least

3   one third clock signal.

1   51.   The method of claim 50, further comprising the step of:

2 at said tag reader, indicating an error when said third reader count does not

3   correspond to said third permanent identification number.

1   52.   A system for conducting an inventory of tags, wherein each tag is

2 assigned a permanent identification number, the system comprising:

3 at a tag reader,

4   means for transmitting a wake-up signal followed by at least one clock

5   signal, and

6   means for incrementing a reader count in response to said at least one

7   clock signal;

8 at each tag,

9   means for incrementing a tag count in response to said at least one clock

10   signal, and

11   means for transmitting a response signal when said permanent

12   identification number of said each tag corresponds to said tag

13   count;

14   at said tag reader,

15   means for recording said reader count when one of said response signals

16   is received, thereby recording the presence of the tag that

17   transmitted said one of said response signals.

1   53.   The system of claim 52, further comprising:

2 at said tag reader, means for transmitting an instruction to perform a tag read.

1   54.   The system of claim 52, wherein the duration of tag transmissions

2 is fixed, further comprising:

3 at said tag reader, means for transmitting a further one of said at least one clock

4   signal after the tag transmission duration has elapsed.

1   55.   The system of claim 52, further comprising:

2 at said tag reader, means for transmitting a further one of said at least one clock

3   signal after a tag response time has elapsed, wherein said tag response

4   time is the maximum duration of time between a tag reader transmission

5   and the reception at said tag reader of a corresponding tag transmission.

1   56.   The system of claim 52, further comprising:

2 at each tag,

3   a sensor; and

4   means for transmitting the contents of said sensor.

1   57.   The system of claim 52, further comprising:

2 means for transmitting a charging signal, thereby energizing the tags.

58.   The system of claim 52, further comprising:

at said tag reader, means for storing a given reader count when more than one tag

responds to one of said at least one clock signal that corresponds to said

given reader count.

59.   The system of claim 58, wherein each tag is assigned a second

permanent identification number, further comprising:

at said tag reader,

means for transmitting said given reader count followed by at least one

second clock signal, and

means for incrementing a second reader count in response to said at least

one second clock signal;

at each tag that responded to said one of said at least one clock signal that

corresponds to said given reader count,

means for incrementing a second tag count in response to said at least one

second clock signal, and

means for transmitting a second response signal when said second

permanent identification number of said each tag corresponds to

said second count; and

at said tag reader,

means for recording said second reader count when one of said second

response signals is received, thereby recording the presence of the

tag that transmitted said one of said second response signals.

60.   The system of claim 59, further comprising:

at said tag reader, means for transmitting an instruction to perform a second tag

read.

61.   The system of claim 59, further comprising:

2   at said tag reader, means for storing said given reader count and a given second

3   reader count when more than one tag responds to one of said at least one

4   second clock signal that corresponds to said given second reader count.

1   62.   The system of claim 61, wherein each tag is assigned a third

2   permanent identification number, further comprising:

3   at said tag reader,

4   means for transmitting said given reader count and said given second

5   reader count followed by at least one third clock signal, and

6   means for incrementing a third reader count in response to said at least

7   one third clock signal;

8   at each tag that responded to said one of said at least one second clock signal that

9   corresponds to said given second reader count,

10   means for incrementing a third tag count in response to said at least one

11   third clock signal, and

12   means for transmitting a third response signal when said third permanent

13   identification number of said each tag corresponds to said third

14   tag count; and

15   at said tag reader,

16   means for recording said third reader count when one of said third

17   response signals is received, thereby recording the presence of the

18   tag that transmitted said one of said third response signals.

1   63.   The system of claim 62, further comprising:

2   at said tag reader, means for transmitting an instruction to perform a third tag

3   read.

1   64.   A method for conducting an inventory of tags, wherein each tag

2   is assigned a permanent identification number, the method comprising the steps

3   of:

4   at a tag reader,

5   transmitting a wake-up signal followed by at least one clock signal, and

6   incrementing a reader count in response to said at least one clock signal;

7   at each tag,

8   incrementing a tag count in response to said at least one clock signal, and

9   transmitting a response signal when said permanent identification number

10   of said each tag corresponds to said tag count; and

11   at said tag reader,

12   recording said reader count when one of said response signals is received,

13   thereby recording the presence of the tag that transmitted said one

14   of said response signals.

1   65.   The method of claim 64, further comprising the step of:

2   at said tag reader, transmitting an instruction to perform a tag read.

1   66.   The method of claim 64, wherein the duration of tag transmissions

2   is fixed, further comprising the step of:

3   at said tag reader, transmitting a further one of said at least one clock signal after

4   the tag transmission duration has elapsed.

1   67.   The method of claim 64, further comprising the step of:

2   at said tag reader, transmitting a further one of said at least one clock signal after

3   a tag response time has elapsed, wherein said tag response time is the

4   maximum duration of time between a tag reader transmission and the

5   reception at said tag reader of a corresponding tag transmission.

1   68.   The method of claim 64, further comprising the steps of:

2   at each tag,

3   sensing an external condition; and

4   transmitting information regarding said external condition.

1   69.   The method of claim 64, further comprising the step of:

2   transmitting a charging signal, thereby energizing the tags.

1   70.   The method of claim 64, further comprising the step of:

2   at said tag reader, storing a given reader count when more than one tag responds

3   to one of said at least one clock signal that corresponds to said given

4   reader count.

1   71.   The method of claim 70, wherein each tag is assigned a second

2   permanent identification number, further comprising the steps of:

3   at said tag reader,

4   transmitting said given reader count followed by at least one second clock

5   signal, and

6   incrementing a second reader count in response to said at least one second

7   clock signal;

8   at each tag that responded to said one of said at least one clock signal that

9   corresponds to said given reader count,

10   incrementing a second tag count in response to said at least one second

11   clock signal, and

12   transmitting a second response signal when said second permanent

13   identification number of said each tag corresponds to said second

14   count; and

15   at said tag reader,

16   recording said second reader count when one of said second response

17   signals is received, thereby recording the presence of the tag that

18   transmitted said one of said second response signals.

1   72.   The method of claim 71, further comprising the step of:

2   at said tag reader, transmitting an instruction to perform a second tag read.

1   73.   The method of claim 71, further comprising the step of:

2   at said tag reader, storing said given reader count and a given second reader count

3   when more than one tag responds to one of said at least one second clock

4   signal that corresponds to said given second reader count.

1   74.   The method of claim 73, wherein each tag is assigned a third

2   permanent identification number, further comprising the steps of:

3   at said tag reader,

4   transmitting said given reader count and said given second reader count

5   followed by at least one third clock signal, and

6   incrementing a third reader count in response to said at least one third

7   clock signal;

8   at each tag that responded to said one of said at least one second clock signal that

9   corresponds to said given second reader count,

10   incrementing a third tag count in response to said at least one third clock

11   signal, and

12   transmitting a third response signal when said third permanent

13   identification number of said each tag corresponds to said third

14   tag count; and

15   at said tag reader,

16   recording said third reader count when one of said third response signals

17   is received, thereby recording the presence of the tag that

18   transmitted said one of said third response signals.

1   75.   The method of claim 74, further comprising the step of:

2   at said tag reader, transmitting an instruction to perform a third tag read.

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1   76.   A method for producing a tag for use in electronic inventory,

2   comprising the steps of:

3   manufacturing an application-specific integrated circuit (ASIC) including

4   inventory response circuitry;

5   programming said ASIC with a permanent identification number;

6   preprinting an antenna pattern and bonding pads on a flexible substrate using a

7   conductive material; and

8   flip-chip bonding said ASIC to said bonding pads using a conductive adhesive.

1   77.   The method of claim 76, further comprising the step of:

2   applying an attachment means to a first portion of the tag, whereby said first

3   portion may be joined to a second portion of the tag to close the tag about

4   an object to be tagged; and

5   perforating said tag so that any attempt to remove a close tag from a tagged

6   object renders the tag inoperative.

1   78.   The method of claim 76, wherein

2   said attachment means is an adhesive.

1   79.   The method of claim 76, further comprising the steps of:

2   preprinting an anode on a first portion of said flexible substrate;

3   preprinting a cathode on a second portion of said flexible substrate;

4   applying at least one of a dielectric material and an electrolytic material to at least

5   one of said anode and said cathode; and

6   applying an attachment means to at least one of said anode and said cathode;

7   whereby a power supply means is formed by the subsequent attachment of said

8   anode and said cathode using said attachment means, and said power

9   supply means is destroyed by any attempt to thereafter detach said anode

10   and said cathode.

1   80.   The method of claim 77, wherein

2   said attachment means is an adhesive.

1   81.   The method of claim 76, further comprising the step of:

2   hermetically sealing said ASIC.

1   82.   The method of claim 76, further comprising the steps of:

2   including at least one sensor on said tag.

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4   83.   The method of claim 76, further comprising the steps of:

5   testing the operability of the tag; and

6   marking the tag if the tag is inoperable.

1   84.   A tag produced by the method of claim 76.

1   85.   A tag produced by the method of claim 77.

1   86.   A tag produced by the method of claim 78.

1   87.   A tag produced by the method of claim 79.

1   88.   A tag produced by the method of claim 80.

1   89.   A tag produced by the method of claim 81.

1   90.   A tag produced by the method of claim 82.

1   91.   A tag produced by the method of claim 83.